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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Application Number: 10/072,402
Filing Date: February 08, 2002
Appellant(s): RODRIGUES ET AL.

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GROUP 1700

David P. LeCroy
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed July 08, 2005.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

This appeal involves claims 7-13 and 15-25. Claim 14 has been withdrawn.

Claims 1-6 have been canceled. Claim 21 is independent claim.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

6,291,594

Rodrigues

September 18, 2001

(9) *Grounds of Rejection*

The following ground(s) of rejection are applicable to the appealed claims:

(A) *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 7-12, 21, 23 and 24 are rejected under 35 U.S.C. 102(b) as being anticipated by Arfaei U.S. Patent 4,960,465.

This rejection is set forth in a prior Office Action, mailed on 07/22/2004.

Arfaei discloses the backbone polymer based on polyoxyalkylene including polyoxyethylene, polyoxypropylene homopolymer or oxypropylene/oxyethylene copolymer, column 1, lines 56-58; column 2, lines 43-46; column 3, lines 17-19 and column 4, lines 50-53. These backbone polymers are classified as polyether backbone that is relatively hydrophobic material. The polyethers may include reactive groups such as amino, carboxyl, or hydroxyl groups, positioned at the end of the polymer, column 2, lines 53-58. The backbone polymer based on polyoxypropylene homopolymer or oxypropylene/oxyethylene copolymer having amino functional group is readable in the present claim 7. The backbone polymer in Arfaei can have both a

hydrophobic moiety and an amine moiety, for the present claim 7. The polyoxyethylene having hydroxyl end group is polyethylene glycol that is alcohol ethoxylate that is readable in the present claim 24. A segment $-(\text{CH}_2\text{-CH}_2\text{-O})_n\text{-CH}_2\text{-CH}_2\text{-OH}$ is readable as alcohol ethoxylate. The backbone polymer can have the average molecular weight of from 200 to 30,000, column 2, lines 65-68. The polyether backbone is grafted, column 3, lines 41-68 and column 4, lines 1-24. A grafted side chain polymer can be dimethylaminoethyl (meth)acrylate, column 4, line 17, for the present claim 23. The grafted (meth)acrylate having amino group is readable in the present claims 21 and 23. The grafting monomer can be used singly or in combination, column 3, line 50. Cationic quaternary ammonium monomers such as the quaternized aminoalkyl acrylates and methacrylates, or N-vinylpyrrolidone, column 4, lines 13 and 20-22, can control a pH value. The cationic quaternary ammonium monomers, column 4, lines 20-21, are readable in the present claim 8. The ratio of grafted amine monomer to said hydrophobe being from 1000:1 to 1:1000 in the present claim 10, or from 100:1 to 1:100 in the present claim 11, or from 10:1 to 1:10 in the present claim 12 is inherent in Arfaei invention because the amount of monomer(s) for preparing the side chain polymers is within the range of about 5% to 50% by weight, based on the combined weight of the monomer(s) and polymer, column 4, lines 36-39. The pH is normally adjusted to provide optimum solubility or dispersibility of the graft copolymer, column 6, lines 31-32. The graft copolymer in Arfaei is readable in the present claims 7-12, 21 and 23-24. Arfaei does not name the backbone polymer such as a non-polymeric surfactant, however, the backbone polyether is a relatively hydrophobic material, such that it has low water

dispersibility or solubility, and wherein an appropriate side=grafted chain having functional group imparts the desired solubility or dispersibility, column 3, lines 17-23. The resulting graft copolymer is used as a dispersant, column 7, line 16-17. Terms dispersant and surfactant have the same meaning. Thus, a polyether backbone can be called as a dispersant or surfactant.

(B)

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

(B1)

1. Claims 13, 15-20 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arfaei U.S. Patent 4,960,465 as applied to claims 7-12, 21 and 23-24 above.

2. Arfaei does not disclose the ratio of said amine to said hydrophobe being about 1:1, for the present claim 13.

3. It would have been obvious to one of ordinary skill in the art to consider that the formulation of a graft copolymer wherein a ratio of amine to a hydrophobe being about 1:1 in the present claim 13 can be obtained in Arfaei invention since the content of the ingredients is depending on the viscosity, solubility and a method of using of said graft

copolymer, and because Arfaei discloses using the graft copolymer in the form of an aqueous solution or dispersion, column 7, lines 16-17.

4. The difference between the present claims and Arfaei is the requirement in the present claims 15-18 of using a graft copolymer for treating a substrate (claim 15), wherein said substrate is selected from the group specified in the present claim 16, and said substrate can be coated in the present claim 17 with the graft copolymer of claim 21. The phrase in the preamble of claim 17, "a control release formulation comprising an active substance" has no support in the body of the claim. "An active substance" is not defined in the present claim 17. An active substance can include, for example, a dye/pigment or a mildew resistance substance. These substances could be a water-soluble. Therefore, it would have been obvious to one of ordinary skill in the art to use in Arfaei invention a graft copolymer in the form of an aqueous solution wherein an active substance could be expected in a coating composition in Arfaei invention and because said "active substance" will not change the property of the coating composition.

9. Arfaei does not disclose a "method for the delivery of an active ingredient" in the present claim 19. It would have been obvious to one of ordinary skill in the art to use a graft copolymer in Arfaei invention in the form of an aqueous coating composition wherein said coating composition comprises a desired active ingredient, and wherein a method of using said composition includes steps of coating, introducing said coating into an aqueous environment and control the pH value to the desired level, this process would understood by those skilled in the art for using a coating composition, this is a

conventional method for delivery, for example, a coloring coating on a substrate, that is within the same expectation for obtaining the adequate results, wherein a pH is controlled by amine moiety or acid moiety.

10. In a method of using a graft copolymer in the present claim 20 Arfaei does not disclose that the aqueous environmental of step b) has a pH greater than pH 8, and wherein the pH of said aqueous environment is lowered below pH 8 in step c). It would have been obvious to one of ordinary skill in the art to use a graft copolymer in Arfaei invention wherein a balance of pH value can be controlled in any step by the content of the same dimethylaminoethyl (meth)acrylate monomer and/or any additional monomer having amino moiety or (meth)acrylic acid. Because Arfaei discloses that the pH is normally adjusted to provide optimum solubility or dispersibility of the graft copolymer, such that the pH is usually brought to a level above the pKa of the acid so as to form ionic species, column 6, lines 31-35.

In the present claim 22 Arfaei does not disclose comprising a copolymerized moiety having at least two monomers selected from the group consisting of methacrylate, maleate, methacrylamide, vinyl esters, itaconates and styrenics. In light of the fact that Arfaei discloses that the graft copolymer is prepared by free radical addition polymerization of an ethylenically unsaturated monomer or a mixture of such monomers in the presence of a polyether, it would have been obvious to one of ordinary skill in the art to select any combination of the ethylenically unsaturated monomers defined at

column 3, lines 41-68 and column 4, lines 1-24, and thereby, obtain the claimed requirement.

In the present claim 25, the graft copolymer comprises a quaternized amine. It would have been obvious to one of ordinary skill in the art to select cationic quaternary ammonium monomers in Arfaei invention at column 4, lines 20-21, and, thereby obtain the requirement in the present claim 25. Selection of grafted monomer(s) is depending on the desired pH value, the desired solubility and viscosity and the desired utility of using the resulting graft copolymer.

(B2) ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 7-13 and 15-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rodrigues U.S. Patent 6,291,594.

6. This rejection is set forth in a prior Office Action, mailed on 07/22/2004.

Rodrigues discloses a graft copolymer comprising polyglycol having a hydroxyl or amine terminal group having the general formula at column 4, line 27, and an ethylenically unsaturated monomer grafted on said polyglycol in the presence of a free radical

initiator, column 1, lines 55-64. The polyglycol such as an alcohol ethoxylate is readable in appellant's claim 24. The alcohol ethoxylate is readable for being a non-polymeric surfactant in the present claim 21. The sizing composition comprising a graft copolymer can be applied on cotton substrate and polyester, col. 7, line 14. Since the composition has cleaning properties, col. 4, line 65, and col. 5, lines 28-37, said composition could have an active substance, for the present claim 17. The ethylenically unsaturated monomer can be selected such as acrylamide, vinyl pyrrolidone, column 3, lines 56-65. Any combination of the ethylenically unsaturated monomers at col. 3, line 28 through col. 4, line 10 is readable in applicants' claim 22. Rodrigus discloses a method for treating fibers with the anhydride based graft copolymer. Any difference in the present method in claim 19 and a method of treating fibers in Rodrigues invention would be obvious to one of ordinary skill in the art since Rodrigues discloses a method of applying a coating having dye or cleaning substance on the textile material such that a pH degree is controlling not only by the amine or acid functionality of the composition but also by an alkaline solution, col. 6, line 12-13.

Rodrigues does not name the backbone polymer such as a non-polymeric surfactant. However, a polyglycol having a functional terminal group is a type of a non-polymeric surfactant.

It would have been obvious to one of ordinary skill in the art to select the polyglycol in Rodrigues invention such that said polyglycol have both a hydrophobic moiety and a functional group such as hydroxyl or amine, because the selection of a functionalized

polyglycol is depending on the desired solubility of the obtained copolymer and wherein the pH condition is controlled by the polar group and an alkaline medium.

(10) Response to Argument

Appellant' arguments in the Appeal Brief have been fully considered but they are not persuasive.

(A) Appellant's argument is that the present alcohol ethoxylate in the present claim 24 is formed by the ethoxylation of a fatty acid (page 4 in appellant's argument and in the Supplement to Appeal Brief), therefore, the repeating unit is the CH₃-(CH₂)_n- as a portion of polymer. Appellant argues that the hydrophobic backbone in the present invention does not have the polyether -(O-R)- repeating unit as taught by Arfaei, because Arfaei teaches a different polymer backbone. This argument is not accepted. First, there is no evidence in the present claims that an alcohol ethoxylate is formed by ethoxylation of a fatty acid having repeating group CH₃-(CH₂)_n- . Secondly, the polyoxyalkylene in Arfaei is clearly readable as a backbone polymer having a hydrophobic moiety and hydroxyl group positioned at the end of the polymer. A segment -(CH₂-CH₂-O)_n-(CH₂-CH₂-OH is readable as alcohol ethoxylate. Arfaei discloses that the polyethers may include reactive groups, such amino, carboxyl, or hydroxyl groups, positioned at the end of the polymer or at intermediate points along the polymer chain, column 2, lines 53-55. Thus, the polyether backbone can have a hydrophobic unit and amino group at the end of the polymer, and the grafted monomer

having amine or amide moiety for the present claim 7. The grafted monomer such as dimethylaminoethyl (meth)acrylate is readable in the present claims.

The claimed "pH triggerable" value is expected and readable in Arfaei invention because a pH degree is controlled by the grafted monomer containing a polar moiety, for example, amino group. Example 1 at column 8, line 7 discloses the pH was about 9.0.

(B) Appellant's argument is that neither Arfaei nor Rodrigues teach or suggest the graft copolymer of the present invention, because references fail to disclose the backbone polymer of the present invention. The examiner disagrees. Each of the references discloses a backbone polymer such as oxyethylene/oxypropylene copolymer in Arfaei, example 1 at column 7, or Rodrigues column 4, line 22. A backbone polymer in each references has a repeating unit -(O-R)- and a hydroxyl end moiety. This segment is readable in appellant's claims being an alcohol ethoxylate, for the present claim 24. Moreover, Rodrigues teaches that the polyglycol can be an alcohol ethoxylate wherein the alcohol is a linear alkyl alcohol having 1 to 20 carbon atoms, column 4, lines 14-24, for the Supplemental Appellant's Brief. This is the same alcohol ethoxylate in the present claim 24. A pH value is controlled by the selected grafted functional monomer.

Appellant is further reminded that although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2nd 1181, 26 USPQ2d 1057 (Fed.Cir. 1993). There is no evidence in

the present claims that an alcohol ethoxylate is formed by ethoxylation of a fatty acid having repeating group CH₃-(CH₂)_n-.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.


Olga Asinovsky

September 11, 2005

September 13, 2005

September 16, 2005

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